REMARKS

Prior to this Amendment, claims 1-29 were pending, and Claims 2 and 6-29 were withdrawn. Claims 1-29 have now been cancelled without prejudice. New Claims 30-58 have been added as replacement claims. Claims 30-31 and 34-58 are based on prior Claims 1-2 and 5-29, respectively. Claim 32 is based on prior Claim 4, and Claim 33 is based on prior claim 3. Claims 31 and 35-58, corresponding to prior Claims 2 and 6-29, are withdrawn. Accordingly, Claims 30-58 are currently pending, and Claims 30 and 32-34 are currently under examination.

Applicants respectfully request rejoinder and examination of Claims 30-58 as described for their corresponding original claims in the Petition under 37 CFR 1.144, filed May 21, 2009. In light of the above amendments and following remarks, Applicants request consideration and allowance of claims 30-58.

Claim amendments

The amendment of Claims 30-58 replace those of the most recent submission.

Claim 30 is based on claim 1, and recites that the Nod-factor binding element comprises one or more first polypeptide or fragment comprising at least 2 extracellular domain LysM motifs, or a fragment of the first polypeptide, that selectively binds strain-specific forms of Nod-factor. The specification and its priority U.S. Provisional application (60/484,923, filed July 3, 2003), fully support these amendments.

For example, the specification generally describes LysM motifs on page 20, line 28 to page 21, line (identically described on page 20, lines 9-28 of the '923 provisional).

The specification describes NFR5 and SYM10 as containing 3 extracellular LysM motifs and NFR1 as containing 2 extracellular LysM motifs. See, for example, page 30, lines 3-7, page 32, lines 18-21, page 38, lines 23-31, Figures 2, 5, 6, and corresponding figure descriptions; page 29, lines 1-5, page 31, lines 15-18, page 35, lines 19-27, Figures 2, 5, and 6, and corresponding figure descriptions in the '923 provisional.

"The protein domain structure predicted for NFR5 and shown in Figure 2a,b, defines a signal peptide, comprising a hydrophobic stretch of 26 amino acids, followed by an extracellular domain with three LysM-type motifs, a transmembrane domain and an intracellular kinase domain." [**Specification** page 30, lines 3-7; and **Provisional** page 29, lines 1-5]

"In common with the NFR5 protein, the SYM10 protein has an N-terminal signal peptide, an extracellular region with three LysM motifs, followed by a transmembrane domain, and then an intracellular domain comprising kinase motifs (Figure 2 and 3)." [**Specification** page 32, lines 18-21; and **Provisional** page 31, lines 15-18]

"The primary sequence and domain structure of NFR1, encoded by *LjNFR1*, are consistent with a transmembrane Nod-factor binding protein… The protein has an amino-terminal signal peptide, followed by an extracellular domain having two LysM-type motifs, a transmembrane domain, and an intracellular carboxy-terminal domain comprising serine/threonine kinases motifs." [**Specification** page 38, lines 23-31; and **Provisional** page 35, lines 19-27]

The specification also discloses that Nod-factor binding elements can comprise one or more isolated NFR polypeptide, NFR1 or NFR5, containing 2 or 3 LysM motifs, respectively. See, for example:

"…a Nod-factor binding element comprising one or more isolated NFR polypeptides. The isolated NFR polypeptides, NFR1, as exemplified by SEQ ID NO: 24 and 25; and NFR5 (including SYM10) as exemplified by SEQ ID NO: 8 and 15…" **[Specification** page 20, lines 20-26]

"…a Nod-factor binding element comprising one or more isolated NFR polypeptides. The isolated NFR polypeptides, NFR1 and NFR5, as exemplified by SEQ ID NO: 25 and SEQ ID NO: 8…" **[Provisional** page 20, lines 2-7]

Thus, the present specification and its priority document, the '923 provisional, provide adequate support for Nod-factor binding elements comprising at least 2 extracellular domain LysM motifs.

The present specification and its priority document, the '923 provisional, also disclose selective binding of strain-specific forms of Nod-factor. For example, original claim 1 recites an isolated Nod-factor binding element comprising one or more isolated Nod-factor binding polypeptide having a specific Nod factor binding property. The specification at page 16, lines 9-12 indicates that Nod-factor binding properties are specific, such that "NFR polypeptides can distinguish between strain-specific chemically modified forms of Nod-factor." (Identically disclosed on page 15, lines 25-28 of the '923 provisional.)

See also, for example, the specification at page 6, lines 23-29; page 16, lines 7-12; page 20, lines 20-26; page 25, lines 22-28; and Example 5, sections 1 and 4; and corresponding sections of the '923 provisional at page 6, lines 16-20; page 15, lines 25-28; page 20, lines 2-7; page 24, lines 19-25; and Example 5, sections 1 and 4.

> "More detailed investigations show that the rhizobial strain recognition specificity of the *NFR5* and *NFR1* alleles is determined by the extracellular domain of the NFR5 and NFR1 proteins." **[Specification** page 51, lines 24-26; and **Provisional** page 48, lines 1-3]

Thus, the present specification and its priority document, the '923 provisional, fully support Nod-factor binding polypeptides and fragments that selectively bind strain-specific forms of Nod-factor.

Claims 31-39, 41, 45, 49-50, and 54-57 amend original Claims 2, 4, 3, 5-10, 12, 16, 20-21, and 25-28, respectively, to make the claim language consistent with new claim 30. Claim 31 further amends original Claim 2 to an independent claim. Claims 33, 38, 56, and 57 amend original Claims 3, 9, 27, and 28, respectively, to correct dependency. Claims 31, 32, 34, 39, and 54 amend original Claims 2, 4, 5, 10, and 25, respectively, to further clarify the claimed subject matter. Claim 56 amends original Claim 27 to specify that the Nod-factor binding element comprises at least 80% sequence identity to a sequence selected from the group consisting of SEQ ID NO: 8, 15, 24, 25, 32, 40, 48, 52, and 54. Support for this amendment can be found in the specification at page 19, line 19-25, and in the '923 provisional at page 19, lines 1-6.

No new matter has been added.

CONCLUSION

Applicants request entry of new claims 30-58. Allowance of the claims is also requested.

The Examiner is invited to telephone the undersigned attorney to clarify any of the amendments or remarks, or to otherwise resolve any outstanding issues.

Applicants have requested an interview to discuss the Unity Petition and any rejections remaining after entry of the corrected claim amendment and remarks submitted in the prior amendment and Petition . The Examiner is reminded that Applicant's representative will be visiting the USPTO on Thursday and Friday, August 27 and 28, 2009 and would appreciate the opportunity to discuss any remaining issues including Unity of Invention, priority of the claim language, and cited art.

Respectfully submitted,

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